



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

APR 11 2013

Colonel William J. Leady, District Engineer
U.S. Army Corps of Engineers, Sacramento District
1325 J Street, 14th floor
Sacramento, California 95814-2922

Subject: Public Notice (PN) SPK-1901-09804 for the proposed Delta Wetlands Project, Contra Costa and San Joaquin Counties, California

Dear Colonel Leady:

The U.S. Environmental Protection Agency (EPA) has reviewed the March 4, 2013 PN SPK-1901-09804 for the Delta Wetlands Project in Contra Costa and San Joaquin Counties, California. We appreciate the extension of the comment period to April 12, 2013. According to the PN, the project would result in the loss or conversion of 2,156 acres of Waters of the U.S. (waters) and have impacts to water quality in the Sacramento-San Joaquin Delta (Delta).

The Delta is an "Aquatic Resource of National Importance" (ARNI), providing critical municipal and agricultural water supply, endangered species habitat, and recreational functions for millions of Californians. The project as proposed may result in substantial and unacceptable impacts to an ARNI, and we respectfully identify the Delta Wetlands permit as a candidate for review by EPA and Corps headquarters pursuant to our agencies' 1992 Memorandum of Agreement under CWA Section 404(q).

We have reviewed the CWA 404 application materials and NEPA/CEQA documents for the 2002 Corps permit, as well as the 2010 supplemental CEQA document. Because these documents were issued at various points over the past 18 years, they do not provide a current comprehensive analysis of the proposed project and do not demonstrate compliance with the CWA 404 (b)(1) Guidelines.

Please see our attached detailed concerns. We look forward to continuing to work with you and your staff on advancing environmentally-sustainable projects in the Delta that are well integrated with the myriad water supply and conservation efforts currently under way in this sensitive and valuable region.

As additional information on this project becomes available, please ask your staff to contact Melissa Scianni at (415) 972-3821. If you would like to discuss this matter personally, please call me at (213) 244-1832 or have your Regulatory Division Chief contact Jason Brush, Supervisor of our Wetlands Office at (415) 972-3483.

Sincerely,

for John Kemmerer
Acting Director, Water Division

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Enclosure:
Detailed EPA Comments

cc:

Delta Wetland Properties

Ms. Maria Rea
National Marine Fisheries Service, Southwest Region

Mr. Mike Chotkowski
US Fish and Wildlife Service, Bay Delta Office

Ms. Elizabeth Lee
Central Valley Regional Water Quality Control Board

Ms. Katherine Mrowka
State Water Resources Control Board, Division of Water Rights

DETAILED EPA COMMENTS ON THE PROPOSED DELTA WETLANDS PROJECT
(CORPS PERMIT # SPK-1901-09804)

I. Project Description

Delta Wetland Properties (Applicant) proposes to develop Bacon Island and Webb Tract (Reservoir Islands) in the central Delta into reservoirs. Water would be pumped onto the Reservoir Islands during periods of high freshwater flow (i.e. winter and spring) and stored for later release during periods of low freshwater flow (i.e. summer and fall). Released water would either be used for export by the Central Valley Project (CVP) and State Water Project (SWP) when they have unused capacity, or to meet water quality requirements. The Applicant is working with the State Water Board to secure water rights for the project.

The Reservoir Islands would be designed to store up to 215 thousand acre feet of water. Two new siphon stations consisting of 16 siphon pipes 36 inches in diameter would be installed along the perimeter of each Reservoir Island to pump water into the reservoirs. Siphons would be installed with fish screens. To discharge water from the reservoirs into adjacent channels, one discharge station consisting of 32-40 pipes 36 inches in diameter would be installed on each Reservoir Island.

Compensation for wetland and wildlife impacts from the project would be provided by implementing a Habitat Management Plan (HMP) on Bouldin Island and Holland Tract (Habitat Islands). The plan consists of managing water levels on the Habitat Islands to create and enhance wetland and wildlife habitat.

The Corps issued a Department of the Army Permit under Clean Water Act (CWA) Section 404 and Rivers and Harbors Act (RHA) Section 10 for the project on June 26, 2002, which required that construction be completed by December 31, 2007. The applicant is applying for a new permit for the project because the previously issued permit has expired.

II. Environmental Setting

The project islands are located in the center of the Sacramento-San Joaquin Delta (Delta) near the confluence of the Sacramento and San Joaquin Rivers. The four islands were created by diking tidal marshlands for agricultural production beginning in the late 1800s. As with other diked marshlands in the Delta, the islands have since subsided due to oxidation and compaction of the underlying peat soils.

In 2002, the Corps identified a total of 860.47 acres of jurisdictional waters of the U.S., including wetlands, on the four islands. The 2002 determination expired in 2007, and the updated determination found a total of 3,851 acres of jurisdictional waters.

The Reservoir Islands contain approximately 2,005 acres of wetlands. The most abundant wetland type on the islands is "farmed wetlands." However, there are more than 300 acres of freshwater marsh and 200 acres of forested wetlands on the two islands. In addition to the wetland habitat, the Reservoir Islands contain numerous ditches/canals and ponds that have been formed by farming activities.

III. Project Impacts

The proposed project will have a variety of impacts to the aquatic environment including direct fill, habitat conversion, and secondary impacts to water quality in the Delta. The project will result in loss or conversion of 2,156 acres of waters, including freshwater marsh and forested wetlands.

The proposed permit would authorize direct fill of 50.62 acres of wetlands. Impacts from construction of new intake and discharge facilities and adjacent boat berthing facilities would occur in both the interior wetlands and in the channels adjacent to the Reservoir Islands. Interior wetlands would also be impacted by grading and levee improvements. An additional 1,954 acres of wetlands would be permanently converted to open water reservoirs.

In addition to the direct impacts to wetlands, the project could have significant impacts on water quality in the Delta. By pumping large volumes of water to fill the 200 thousand acre-foot capacity Reservoir Islands, the project has the potential to affect the direction and magnitude of freshwater flows. Additional changes to the hydrodynamics of the already heavily modified Delta could have a cascade of negative effects to salinity, dissolved oxygen, temperature, and ultimately native fish populations and drinking water supplies. Both the Reservoir and Habitat Islands also have the potential to affect production and transport of methylmercury and invasive species, which are CWA §303(d) listed pollutants. Invasive species, in particular, are considered a primary contributor to aquatic ecosystem collapse in the Delta and threaten the success of restoration efforts. The applicant has proposed operating rules to minimize these effects. However, EPA remains concerned about the magnitude of potential impacts, especially in light of the substantial changes to water supply infrastructure and habitat restoration being contemplated by the California Department of Water Resources and the U.S. Bureau of Reclamation under the Bay Delta Conservation Plan (BDCP).

IV. Aquatic Resources of National Importance

The project site is in the 1,150-square mile Sacramento-San Joaquin Delta (Delta), a triangular-shaped region of land and water at the confluence of two of California's major river systems- the Sacramento and San Joaquin. Waters of these rivers join two smaller tributaries, the Mokelumne and Cosumnes Rivers, to form a maze of immensely productive estuarine waterways and wetlands that drain more than 40 percent of California's surface area¹.

Fresh water moving through the Delta waterways is channeled into federal, state, and local conveyance systems to supply the municipal drinking water needs of 25 million Californians and support approximately four and a half million acres of California agriculture². Recreation activities such as boating, fishing, and duck hunting generate millions of recreation trips to the Delta every year³. Though considerably degraded over the last 160 years, the Delta also hosts a rich diversity of flora and fauna; 750 species of plants, fish, and wildlife are found there. Several endangered and threatened species are found in the Delta, including delta smelt, steelhead, spring-run Chinook salmon, winter-run Chinook salmon, giant garter snake, valley elderberry longhorn beetle and riparian brush rabbit. Two-thirds of

¹ Lund, J., Hanak, E., Fleenor, W., Howitt, R., Mount, J., and Moyle, P. 2007. *Envisioning Futures For the Sacramento-San Joaquin Delta*. Public Policy Institute of California.

² *Sustainable Water and Environmental Management in the California Bay-Delta*. 2012. National Academies Press http://www.nap.edu/openbook.php?record_id=13394&page=1

³ Public Policy Institute of California. 2007. *Envisioning Futures for the Sacramento-San Joaquin Delta*; pages 5-6. http://www.ppic.org/content/pubs/report/R_207JLR.pdf

the State's salmon pass through Delta waters, and at least half of its Pacific Flyway migratory water birds rely on the region's wetlands⁴.

The Delta ecosystem has undergone significant changes over the past century. Over 95% of the historic Delta tidal wetlands have been converted to a patchwork of subsided farmed islands and constructed, straightened, and deepened channels⁵. The project is proposed in the Western Delta where the diked marshlands are still being actively farmed, and the underlying peat soils have been compacted, eroded, oxidized, and subsided to as deep as 25 feet below sea level⁶. Delta waterways have been listed as *impaired* per CWA §303(d) for numerous pollutants including nutrient enrichment and corresponding low dissolved oxygen levels, freshwater diversion and corresponding high salinity levels, pathogens, invasive species, industrial compounds (e.g., dioxin, furan, mercury, PCBs), pesticides (organophosphate and organochlorine), and toxicity from unknown sources⁷. Beginning in 2000, populations of delta smelt, striped bass, and other pelagic organisms abruptly declined and have not recovered substantially. The *pelagic organism decline* (POD) is likely the result of deteriorating habitat for these fishes that are linked with the impairments listed above⁸.

In September 2006, Governor Schwarzenegger signed Executive Order S-17-06. This Order required the development of a Delta Vision that articulates possible alternative futures for the Delta region and provides a sustainable management strategy. In 2008, this process was completed with a collection of recommendations for long-term management of the Delta. In his Executive Order, the Governor referred to the Delta as “a unique natural resource of local, state and national significance.”

In light of the overall importance of the Delta and the State's interest in these unique resources, EPA believes that the aquatic resources that comprise the Delta region are aquatic resources of national importance.

V. Interim Federal Action Plan & EPA Water Quality Action Plan

Actions permitted under the CWA §404 Program should be consistent with federal commitments in the Interim Federal Action Plan (IFAP) for the California Bay-Delta⁹ and EPA's Action Plan for Water Quality Challenges in the SF Bay Delta Estuary.¹⁰ In 2009, the Corps, EPA, and four other federal agencies signed the IFAP. It outlines federal commitments to support California's effort to address the ecological and water supply crises in the Sacramento-San Joaquin River Delta. Specifically, Corps and EPA should ensure that CWA permitted actions are consistent with the third priority in the IFAP:

“Third, agencies will work together on programs and projects to ensure healthy Bay-Delta ecosystems and improve water quality. Recognizing that Delta restoration will require a robust watershed approach, agencies will investigate and mitigate other stressors affecting Bay-Delta

⁴ UOP Business Forecasting Center. 2010. *Employment Impacts of California Salmon Fishery Closures in 2008 and 2009*. <http://forecast.pacific.edu/BFC%20salmon%20jobs.pdf>

⁵ San Francisco Estuary Institute. 2012. Sacramento-San Joaquin Delta Historical Ecology Study. Found at: <http://sfei.org/DeltaHEStudy>

⁶ USGS; Delta Subsidence in California. 2000. <http://pubs.usgs.gov/fs/2000/fs00500/pdf/fs00500.pdf>

⁷ 2010 CWA Section 303(d) List of Water Quality Limited Segments. http://www.swrcb.ca.gov/water_issues/programs/tmdl/integrated2010.shtml

⁸ Interagency Ecological Program 2008. Pelagic Organism Decline Progress Report: 2007 Synthesis of Results.

⁹ <http://www.doi.gov/news/pressreleases/upload/CAWaterWorkPlan.pdf>

¹⁰ U.S. EPA. 2012. Bay-Delta Action Plan. <http://www2.epa.gov/sfbay-delta/bay-delta-action-plan>

species, accelerate construction and upgrade of species restoration facilities, advance ecosystem restoration projects, prioritize projects that reduce fish-water supply interactions, address climate change, and diversify water supply for refuges.”¹¹

Similarly, Corps permitted CWA actions should be consistent with and advance EPA’s Action Plan for Water Quality Challenges in the SF Bay Delta Estuary. EPA reviewed CWA programs to measure their success and identify actions needed to accelerate restoration of water quality as one of our commitments in the IFAP. EPA’s review concluded that State and federal programs under the Clean Water Act, which includes the CWA §404 program, have not stemmed the decline of the estuary’s aquatic resources. In response to the CWA program review, EPA developed an Action Plan that identifies priority actions to increase protection of aquatic life. Priorities most relevant to CWA § 404 permitting in the Delta include strengthening estuarine habitat standards, establishing a regional monitoring and assessment program for water quality in the Delta, improving water quality through Total Maximum Daily Load (TMDL) implementation, and restoring wetlands using methods that minimize methylmercury production and transport, sequester greenhouse gases and increase resiliency to floods, earthquakes, and climate change.

VI. Compliance with the CWA 404(b)(1) Guidelines

The Clean Water Act 404(b)(1) Guidelines (Guidelines) state that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences (40 CFR 230.10(a)). It is incumbent upon the applicant to clearly demonstrate that the proposed project represents the least environmentally damaging practicable alternative (LEDPA) and that the proposed compensatory mitigation fully offsets all unavoidable impacts.

LEDPA Determination— 40 CFR 230.10(a)

Identification of the LEDPA is achieved by performing an alternatives analysis that estimates the direct, indirect, and cumulative impacts to jurisdictional waters. Project alternatives that are not practicable and do not meet the project purpose are eliminated. The LEDPA is the remaining alternative with the fewest impacts to aquatic resources, so long as it does not have other significant adverse environmental consequences. It is incumbent upon the applicant to clearly demonstrate that the proposed project represents the LEDPA that achieves the basic project purpose. The basic project purpose for the proposed project is water supply.

The applicant analyzed a number of alternatives in their 1995 CWA §404 Alternatives Analysis, as well as in the original and supplemental NEPA and CEQA documents, and identified the proposed project as the LEDPA. Alternatives analyzed for the original project included, storage on other Delta islands, full storage on the proposed Reservoir Islands, partial storage on the proposed Reservoir Islands, storage on the proposed Reservoir and Habitat Islands, storage outside the Delta, water conservation, ground water management, and desalination, among others. However, since the proposed project was first permitted by the Corps, the regulatory and judicial framework for managing freshwater and fisheries in the Delta has changed substantially in response to the POD described above. This evolving framework includes “jeopardy” biological opinions under the Endangered Species Act (ESA) for the CVP and SWP, an update of the Bay-Delta Water Quality Control Plan, new Total Maximum Daily Load (TMDL) targets for a number of pollutants, ongoing FERC relicensing agreements, and the emergence of the BDCP.

¹¹ <http://www.doi.gov/news/pressreleases/upload/CAWaterWorkPlan.pdf> page 6.

In addition to changes in the regulatory framework, the Corps has conducted a new jurisdictional determination for the project, which found substantially more wetlands on the four islands than under the previous determination. The wetland impacts for the Reservoir Islands have risen from 394 acres to 2,156 acres, which is more than a five-fold increase. Given the changes that have occurred since 2002, the applicant will need to conduct a new alternatives analysis. As with the previous permit, the analysis will need to evaluate onsite and offsite structural and non-structural alternatives in light of the current regulatory environment. The analysis will also need to include an evaluation of how the proposed project interfaces with other ongoing and planned water supply, habitat restoration, and infrastructure projects in the region.

The scale of the proposed project and the magnitude of potential impacts require a detailed evaluation of direct, indirect, and cumulative effects resulting from each of the alternatives considered. The multiple NEPA, CEQA, and CWA documents issued over the past 18 years have addressed impacts from various components of the project at different time periods. However, there is no current, comprehensive analysis of project impacts. The applicant and Corps will need to provide a complete up-to-date analysis of direct, indirect, and cumulative impacts to the aquatic environment before the LEDPA can be identified. This analysis should include an evaluation of the project under various future scenarios that have a substantially different distribution of freshwater flow, islands, levees, and habitat. The Delta ecosystem has been severely impacted by numerous development, infrastructure, water diversion, and flood control projects. Any applicant proposing to further alter flow in this ecosystem needs to fully consider the cumulative impacts of the proposed project.

The impact analysis should also consider future subsidence on the Reservoir and Habitat Islands, levee stability and necessary maintenance requirements, and predicted sea-level rise. The Corps should evaluate whether converting Bacon Island and Webb Tract to reservoirs would exacerbate subsidence of the underlying peat-based soils subsequently erode stability of levees. The evaluation should include justifications for the expected subsidence rates on the Reservoir and Habitat Islands.

Recommendations:

- Update the alternatives analysis with current regulatory framework, ecological conditions and available alternatives.
- Describe how the project interfaces with current and planned water supply, restoration, and infrastructure projects in the Delta.
- Provide a current, thorough analysis of direct, indirect, and cumulative impacts for each alternative.
- Include an analysis of impacts from expected future subsidence and sea-level rise for both the Reservoir and Habitat Islands. Provide justifications for subsidence rates expected under each alternative.

Water Quality, Toxic Effluent, and Endangered Species – 40 CFR 230.10(b)

The proposed project could have substantial adverse impacts to already *impaired* water quality throughout the Delta (described above; please see Part IV). The Corps and applicant will need to conduct an analysis of the proposed project operations to determine their effect on persistent water quality impairments listed above. Some of these impairments are being addressed by approved TMDLs. The analysis should focus on the effect of the project on these impairments to determine whether or not project activities will improve or further degrade water quality.

By periodically pumping very large volumes onto 20,000 acre islands, which represents more than 200 thousand acre-feet of storage, the proposed project has the potential to significantly affect the direction and magnitude of freshwater flow. Alterations to freshwater flow will in turn affect salinity, dissolved oxygen, and temperature distributions in the Delta. Three dimensional modeling tools are available to evaluate turbidity and salinity distribution in the Bay-Delta Estuary under different freshwater flow management scenarios. These tools should be used by the Corps and applicant to determine the impact of project operations on water quality objectives and requirements in existing biological opinions. Project impacts on low dissolved oxygen in Old and Middle Rivers and the Stockton Deep Water Ship Channel should also be evaluated.

In 2011 the Central Valley Regional Board adopted the Delta Methylmercury (MeHg) TMDL¹², which includes biological and water column objectives. California is also in the process of developing a MeHg TMDL for reservoirs across the state, which includes consideration of aerial deposition of mercury in driving MeHg levels. The applicant will need to work with the State Water Resources Control Board and the Regional Water Boards governing the Bay and Delta regions to determine how the reservoirs will be regulated under the existing mercury TMDLs.

Methylation of inorganic mercury by sulfate reducing bacteria occurs in saturated sediments throughout the Delta, and the rate of MeHg production is affected by environmental conditions, such as temperature and pH. The proposed project will change conditions on both the Reservoir and Habitat Islands, and the applicant should analyze the potential effect of the project on the production and transport of MeHg. Also, the Corps and applicant should evaluate the impact of the proposed project on mercury levels in the water column and fish tissue to assess compliance with state water quality objectives. The Reservoir Islands are likely to receive mercury inputs from aqueous and aerial sources, and both sources should be considered in the evaluation.

The Delta has been heavily impacted by numerous invasive species, which have collectively been linked to changes in the phytoplankton community, decreased primary productivity, and declining fish populations.¹³ We are concerned that the Reservoir Islands may provide habitat for and encourage the spread of invasive clam populations (corbula, corbicula, and/or quagga species), aquatic weeds, and non-native predatory fish. The Corps should evaluate the potential of the Reservoir Islands to promote the spread of these invasive species and subsequent impacts on threatened and endangered fish such as delta smelt, longfin smelt, and salmonids.

The applicants' 2010 Draft EIR under CEQA estimates that the project could increase channel temperature by 4 degrees Fahrenheit. The Corps should assess the impact of this temperature change on aquatic life, especially in situations where the channel temperature may already be approaching EPA Guidance for temperature water quality criteria for salmonids.¹⁴ If the project is likely to result in exceedances of the temperature criteria, the Corps should identify measures to limit temperature increases from reservoir releases.

¹² http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/

¹³ U.S. EPA. 2011. Advanced Notice of Proposed Rulemaking for Water Quality Challenges in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. http://www2.epa.gov/sites/production/files/documents/baydeltaanpr-fr_unabridged.pdf

¹⁴ EPA Region 10 Guidance For Pacific Northwest State and Tribal Temperature Water Quality Standards http://www.epa.gov/region10/pdf/water/final_temperature_guidance_2003.pdf

Recommendations:

- Use existing three dimensional modeling tools to evaluate turbidity and salinity distribution in the Bay-Delta Estuary under different freshwater flow management scenarios.
- Analyze production and transport of MeHg from both the Reservoir and Habitat Islands, and include control measures to comply with water quality objectives. Consider both aqueous and aerial sources of mercury in the analysis.
- Assess the potential of the Reservoir Islands to promote the spread of invasive clams, aquatic weeds, and non-native predatory fish.
- Evaluate how the project's increase in channel temperature will impact aquatic life, especially in situations where the channel temperature is already approaching the criteria for salmonids.

Avoidance, Minimization, and Compensation – 40 CFR 230.10(d)

Discharge of dredged or fill material shall not be permitted unless all appropriate and practicable steps have been taken to avoid and minimize potential adverse impacts of the discharge on the aquatic ecosystem. For unavoidable impacts that remain, the applicant is required to comply with the 2008 Final Rule for Compensatory Mitigation of Aquatic Resources (Mitigation Rule; 40 CFR Part 230, Subpart J).

The proposed Habitat Management Plan (HMP) does not comply with the Mitigation Rule. The applicant proposes to implement the HMP on Bouldin Island and Holland Tract (Habitat Islands) to offset proposed unavoidable project impacts. The HMP includes a number of activities in mitigation wetlands that are incompatible with compensatory mitigation, including active agriculture and recreation. The HMP relies on pumping water on and off the Habitat islands as well as extensive vegetation management to establish the proposed aquatic habitats. This level of in-perpetuity management is not appropriate for compensatory mitigation sites. Compensatory mitigation must be self-sustaining and should have limited long-term maintenance and management requirements (40 CFR 230.93(d)).

The applicant needs to update the HMP by developing a mitigation plan for waters of the U.S. that incorporates new information and focuses on providing high quality, ecologically sustainable habitats. The Mitigation Rule identifies twelve required components for all compensatory mitigation plans (40 CFR 230.94(c)), including quantitative ecologically-based performance standards, adaptive management plans, and financial assurances.

A great deal of research on the historical ecology of the Delta has been done since the HMP was developed in the 1990's, including the *Sacramento-San Joaquin Delta Historical Ecological Study*¹⁵ (HE Study). The applicant should take advantage of this scientific research to inform mitigation design and screen elements of the proposed mitigation for long-term viability using the Target Questions¹⁶ drawn from the HE Study. Recently, wetlands restoration projects at McCormack-Williamson Tract and Yolo Ranch were re-evaluated in light of findings from the HE Study, and project proponents are now contemplating significant redesigns of both projects. In addition to the HE study, the applicants should explore whether lessons learned from the "Carbon Farm" pilot project on Twitchell Island¹⁷ could be used to inform a mitigation design that helps reverse subsidence and stabilize levees on the Habitat Islands.

¹⁵ <http://sfei.org/DeltaHEStudy>

¹⁶ <http://www.sfei.org/content/DeltaHETargetQuestions>

¹⁷ http://ca.water.usgs.gov/Carbon_Farm/

As addressed above, the proposed mitigation on the Habitat Islands has the potential to affect MeHg formation and transport. USGS in partnership with DWR and EPA are currently exploring the *in situ* sequestration of MeHg on Twitchell Island using a method known as Low Intensity Chemical Dosing¹⁸ (LICD). The applicant should consider whether this method could be applied to the restoration projects proposed for the Habitat Islands.

Recommendations:

- Develop a compensatory mitigation approach that does not rely on heavily managed hydrology and vegetation.
- Update the HMP to comply with the 2008 Final Rule for Compensatory Mitigation of Aquatic Resources.
- Use the HE Study to help inform mitigation design and ensure that the project does not preclude the design and implementation of other landscape-level projects that could yield benefits to water quality, water supply, and habitat restoration.
- To the extent feasible, design mitigation wetlands to reduce subsidence and sequester MeHg.

¹⁸ <http://ca.water.usgs.gov/projects/LICD/>